Functio-Esthetic Rehabilitation in Severe Hypodontia: 
an Interdisciplinary Approach

Kavita Maru, Sumeer Jain, Suryansh Dilliwal, Namrata Agrawal
Department of Prosthodontics, Sri Aurobindo College of Dentistry, Indore

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Full mouth rehabilitation in cases of severe hypodontia remains a clinical challenge and requires a meticulous interdisciplinary approach to obtain desirable results. Early diagnosis, and comprehensive treatment planning with good coordination and timing of the individual treatment phases are integral for successful treatment outcome. The present article reports a case of severe hypodontia in a 19-year old female patient with 11 permanent teeth missing. Treatment began with comprehensive orthodontic therapy followed by restoration of the edentulous spans by fixed dental prosthesis to achieve functional and aesthetic satisfaction of the patient.

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ABSTRACT

Full mouth rehabilitation in cases of severe hypodontia remains a clinical challenge and requires a meticulous interdisciplinary approach to obtain desirable results. Early diagnosis, and comprehensive treatment planning with good coordination and timing of the individual treatment phases are integral for successful treatment outcome. The present article reports a case of severe hypodontia in a 19-year old female patient with 11 permanent teeth missing. Treatment began with comprehensive orthodontic therapy followed by restoration of the edentulous spans by fixed dental prosthesis to achieve functional and aesthetic satisfaction of the patient.

KEY WORDS: fixed dental prosthesis, interdisciplinary, severe hypodontia

INTRODUCTION:

Hypodontia is defined as the developmental absence of one tooth or more. It may be present with varying degrees of severity viz. mild, moderate and severe. Severe hypodontia is developmental or congenital condition with absence of six or more teeth. Absence of fewer than normal teeth in the presence of systemic manifestations is often termed Oligodontia. Severe hypodontia of the permanent dentition has prevalence of 0.3% of the population.

Treatment in general depends on severity of hypodontia and ranges from single restorations to surgery, to improve appearance, mastication, and speech, associated with lifelong maintenance. The interdisciplinary intervention involving a committed team to achieve an optimal outcome for the patient is one of the key factors, for the successful treatment of patients with hypodontia. This report describes an interdisciplinary treatment approach for a 19 years old female patient with severe hypodontia exhibiting congenital absence of 11 permanent teeth.

CASE REPORT:

Pre-treatment evaluation: A 19 years old female patient presented with the complaint of multiple missing teeth and unpleasant smile. Family history did not reveal any hereditary trait and no systemic manifestations were found.

Extra oral examination revealed a flat profile having facial symmetry. Intra-oral examination revealed absence of 11 permanent teeth. The missing teeth were 12, 13, 14, 22, 23, 27, 31, 32, 35, 41, and 42. Over retained deciduous 53, 63 and 75 were found. Diastema of about 3mm was present between 11 & 21(Figure 1).

Diagnostic records included an Orthopantomogram (Figure 2), a lateral cephalogram, and study models. The patient was explained all the treatment alternatives like orthodontic space management, osseointegrated implant supported prosthesis and conventional fixed prosthesis using a variety of materials. After thorough evaluation and discussion, treatment plan was finalized, explained to the patient and consent obtained.

Treatment phases:

1. Pre-restorative Orthodontics: After extraction of 53, 63 and 75, comprehensive Fixed Orthodontic treatment was done with the help of O22 preadjusted edge-wise appliance (PEA). Orthodontic treatment was initiated with the alignment of teeth followed by diastema closure along with intrusion of maxillary central incisors (Figure 3).
2. Restoration with a removable partial denture:
After completion of orthodontic treatment, again diagnostic impressions were made to evaluate the occlusion. Second molars were in adequate intercuspation thus used for establishing final functional occlusion. Patient was then given interim acrylic removable partial dentures for diagnostic vertical space assessment and to check aesthetic outcome before placement of definitive prosthesis.

3. Restoration with a tooth-supported fixed partial dental prosthesis:
Tooth preparations were done for 33 & 43 and 35 & 37 and for maxillary teeth i.e. 11 & 15 and 21 & 24 with heavy chamfer finish line. The provisional FDP restorations were delivered according to visibility and aesthetic. Cementation of provisional restorations was done with Non Eugenol temporary cement. Maxillary and mandibular elastomeric impressions were made with two step double mix technique with polyvinyl siloxane impression material after gingival retraction. Interocclusal records were obtained with silicone bite registration material using vertical stop present in right second molar region as guide. The working casts were mounted with ear-piece facebow record on Whipmix semi adjustable articulator and wax try-in was done. The Porcelain fused to metal prosthesis was designed to develop Group function occlusion for even distribution of occlusal loads. The prosthesis was cemented with type I Glass Ionomer Cement (GC Fuji I) (Figure 4).

4. Follow up- Oral hygiene instructions were given to the patient and patient was recalled after one week of cementation. Patient expressed satisfaction and confidence in the treatment delivered. Patient was called upon for recall visits every six months.

DISCUSSION:
Hypodontia can be both non-syndromic, where it is an independent congenital oral trait; or syndromic, where it is acquired as part of a specific disease. Non-syndromic Hypodontia is more common than syndromic form. In present case, no systemic clinical signs and symptoms were detected. So, the probable diagnosis was severe hypodontia-isolated/nonsyndromic. Restorative treatment generally requires interdisciplinary teamwork, including an Orthodontist and a Prosthodontist. Pre-prosthetic orthodontic therapy is required for proper positioning of the teeth to achieve improved biomechanical, functional, and esthetic outcome.

Considering the oral rehabilitation of 11 missing permanent teeth, the present patient opted for fixed dental prosthesis over implant-supported restorations because of time and cost constraints. Conventional FDP have been a popular treatment modality, because of predictable and successful results. Prosthodontic rehabilitation via dental implants is a successful treatment, although being difficult occasionally because the congenital absence of teeth may result in lack of sufficient alveolar bone for implant placement. It may dictate the use of a narrow platform implant and if vertical height is poor, it may lead to unfavorable crown and implant length ratio.
CONCLUSION:

Treatment of hypodontia is challenging but a coordinated interdisciplinary approach that goes long way in restoring or building up patient's self confidence and social outlook. With technological advancements, treatment options for such conditions have dramatically increased but we must understand that such patients are special with special treatment needs. Hence, it should be dealt on an individual basis for the most successful clinical outcome.

REFERENCES:


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